

Appl. No. 10/605,503  
Amdt. dated March 23, 2005  
Reply to Office action of February 01, 2005

**Amendments to the Specification:**

Please replace paragraph [0007] with the following amended paragraph:

5 [0007] The typical inkjet printhead (i.e., the silicon substrate, structures built on the  
substrate, and connections to the substrate) uses liquid ink (i.e., colorants dissolved or  
dispersed in a solvent). It has an array of precisely formed nozzles attached to a printhead  
substrate that incorporates an array of firing chambers which receive liquid ink from the  
ink reservoir. Each chamber has a thin-film resistor, known as an inkjet firing chamber  
10 resistor, located opposite the nozzle so ink can collect between it and the nozzle. When  
electric printing pulses heat the ~~inkjet~~ inkjet firing chamber resistor, a small portion of the  
ink next to it vaporizes and ejects a drop of ink from the printhead. Properly arranged  
nozzles form a dot matrix pattern. Properly sequencing the operation of each nozzle  
causes characters or images to be printed upon the paper as the printhead moves past the  
15 paper.

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Please replace paragraph [0008] with the following amended paragraph:

[0008] Print quality is one of the most important considerations of competition in the  
color ~~inkjet~~ inkjet printer field. Since the image output of a color ~~inkjet~~ inkjet printer is  
20 formed of thousands of individual ink drops, the quality of the image is ultimately  
dependent upon the quality of each ink drop and the arrangement of the ink drops on the  
print medium. One source of print quality degradation is improper ink drop volume.

Please add the following new paragraph after paragraph [0024]:

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[0024.1] Fig.9 shows heaters formed on a substrate for ejecting ink from a nozzle.

Please replace paragraph [0026] with the following amended paragraph:

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[0026] Please refer to Fig.9 and Fig.2 with reference to Fig.1. Fig.9 shows heaters 33 formed on a substrate 31 for ejecting ink from a nozzle 32. Fig.2 shows a plurality of the nozzles 32 formed on the printhead 18. The plurality of nozzles 32 eject ink droplets according to the printing and non-printing pulses received from the head driver circuit 20. As shown in Fig.9, the ~~[[The]]~~ printhead 18 further comprises ~~[[a]]~~ the plurality of heaters 33 for heating up ink, and for creating bubbles in the ink to cause ink to eject from the corresponding nozzles 32. As more and more ink is ejected from each nozzle 32 or group 34 of nozzles 32, the temperature of the ink will increase. To compensate for this, the present invention utilizes a counter 14 for measuring the quantity of data printed. As the data transducer 12 sends the print data to the head driver circuit 20, the data transducer 12 also sends the print data to the counter 14. The counter 14 can count print data information for either individual nozzles 32 or for each group 34 of nozzles 32, depending on the wishes of the manufacturer. If the counter 14 is used for a group 34 of nozzles 32, nozzles 32 in the group 34 of nozzles 32 are preferably in close proximity to each other. For the following disclosure, assume that the counter 14 counts print data information for each group 34 of nozzles 32, and stores a total quantity of printing data value corresponding to each group 34 of nozzles 32 in a memory 16. When the data transducer 12 outputs print data having a value of "1" to a nozzle 32 within a specific group 34 of nozzles 32, the counter 14 reads the previous total quantity of printing data value stored in the memory 16, increases the value, and stores the increased value into the memory 16. On the other hand, when the data transducer 12 outputs print data having a value of "0" to a nozzle 32 within a specific group 34 of nozzles 32, the counter 14 reads the previous total quantity of printing data value stored in the memory 16, decreases the value, and stores the decreased value into the memory 16.

Please replace paragraph [0028] with the following amended paragraph:

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[0028] Please refer to Fig.3. Fig.3 shows variations of non-printing pulses and printing pulses according to the present invention. Six variations of each are shown. The six signals on the left are non-printing pulses corresponding to print data with a value of "0". Conversely, the six signals on the right are printing pulses corresponding to print data with a value of "1". In each case, signals are arranged in order of increasing energy. For example, the first signal for the non-printing pulses would impart no energy to a heater 33 corresponding to the specified nozzle 32. On the other hand, the last signal for the non-printing pulses would impart a significant amount of energy to the heater 33 corresponding to the specified nozzle 32. The printing and non-printing pulses are selected by the head driver circuit 20 according to the total quantity of printing data value corresponding to the specified nozzle 32, which the head driver circuit 20 reads from the memory 16. The lower the total quantity of printing data value stored in the memory 16 is, the less energy the selected printing and non-printing pulses will have, and vice-versa.